12.2.1
1/01
GTYCF

Response to Washington State Department of Ecology Comments on Draft *Sampling and Analysis Plan for the Quendall Terminals Property* (Exponent 2000)

Ecology Comment 1: "Section 2.2.3, page 6: This section should be revised for handling samples that will be used in bioassays. This section is adequate for chemical testing only which will be adequate for conventionals."

Response: Additional details on sample handling procedures are provided in the QAPP. After collection, samples for toxicity testing will be handled in the same manner as samples that would be sent to a chemical testing laboratory for organic and metal analyses. All samples will be handled in a consistent manner to produce quality results.

Ecology Comment 2: "Table 4-1: This table should specify the procedures for each of the toxicity test samples including Microtox. A footnote to see specific methods is inadequate since the focus of this study is the toxicity assessment. For instance, handling procedures should specify the need to assure that the Microtox samples arrive at the lab with adequate water to allow for the centrifuging of pore water."

Response: In routine practice, far more sediment is collected and shipped to the toxicity testing laboratory than is required for conducting these tests so that adequate sediment is available if any of the tests need to be repeated. The sediment volumes required from each sample (all replicates included) for the conduct of the 10-day amphipod test, the 10-day chironomid test, and the 21-day chironomid test are 800 mL for each test, or a total of 2,400 mL. For this project, a total of 6 L of sediment will be shipped to the toxicity testing laboratory, far in excess of the total required for these three tests. Provided that the sediment samples delivered to the toxicity testing laboratory arrive in good condition, there should be more than enough sediment left over to yield the necessary volume of pore water (approximately 50 mL) for the Microtox® test. The protocol for the Microtox® test provided in the QAPP suggests that approximately 500 mL of sediment should be centrifuged to yield this volume of pore water. Hence, the total volume of sediment from each sample that is shipped to the toxicity testing laboratory will be approximately double the volume needed for the conduct of these tests.

Ecology Comment 3: "Section 4, Field Data Reporting, page 9: Please add to this section any biological activity observed in the field and in the lab including species identification."

> **Response:** Any biological activity observed in the field will be noted in the field logbook. Any biological activity observed in the laboratory will be noted in the laboratory notebook. Although the presence of indigenous organisms in the samples will be noted, identification to species is generally not possible without microscopic examination by taxonomic experts. Identification of indigenous organisms will only be to the lowest practicable taxon.

Ecology Comment 4: "Section 6.2, page A6-1: The lab will probably use a toxicant such as cadmium chloride not sodium chloride in its positive control measurement. Please contact the lab to verify and correct in the final document."

> **Response:** The toxicity testing laboratory will be using sodium chloride as reference toxicant. Although metal chlorides (e.g., cadmium chloride) were routinely used as reference toxicants in the past, testing laboratories have switched to the use of either sodium chloride or potassium chloride because of disposal issues.

Ecology Comment 5: "Section 7.2, Toxicity tests: Please have the labs measure dissolved oxygen and pH right **before and after** they change out the water in the test where there is no flow through or aeration. What is the precision of the balance used to measure the ashed animals? Why are they performing ash free dry weight measurements?"

> **Response:** All of the tests will be conducted using an intermittent flow-though system. Overlying water in each test chamber will be renewed at a rate of two volume exchanges per day. The system is designed to deliver fresh water to the exposures seven times per day. The water delivery is afforded through the use of a timer connected to a pump located within the water delivery head box. At each timed interval, equal volumes of fresh water will be delivered to each aquarium containing the individual test replicates. All of the test exposures will be contained in a flow-through environment.
>
> Weight determinations for the organisms will be performed on an analytical balance accurate to the nearest 0.01 mg. The balance is automatically calibrated daily and verified daily using class S weights. In addition, the balance is serviced yearly by a representative from Calibration Technical Services. All calibrations and verifications are recorded daily, and service records are maintained by the toxicity testing laboratory in log books.

Reference to the use of ash-free dry-weight determinations was based on the recommendation in the newest version (year 2000) of the EPA manual for performing sediment toxicity tests with freshwater invertebrates (EPA/600/R-94/024). However, because the scope of work prepared with the toxicity testing laboratory specifies use of the 1994 version of the EPA manual and this version of the manual does not include use of ash-free dry-weight determinations, ash-free dry-weight determinations will not be performed, contrary to what was indicated in the text.

Ecology Comment 6: "Section 7.0, Data Reporting: Data needs to be submitted in electronic format on diskette to our headquarters office so it can be included in our sediments database. In addition, all field logs, laboratory data packages and written reports should be included as appendices in the final report package."

Response: Data will be submitted to Ecology in electronic format. Copies of the field log, laboratory data packages, and written laboratory reports will be included as appendices in the final report to Ecology.

Ecology Comment 7: "As discussed by phone, please include in this document a statement regarding contacting Ecology if bioassays are not performing as expected."

Response: Ecology will be contacted if the bioassays are not performing as expected.

Reference

Exponent. 2000. Sampling and analysis plan for the Quendall Terminals property. Prepared for City of Renton, Renton, WA. Exponent, Bellevue, WA.